

COMPLETE LISTING OF CLAIMS
IN ASCENDING ORDER WITH STATUS INDICATOR

Claim 1 (withdrawn): A substrate processing method for processing at least a substrate-to-be-processed held in a processing vessel with a processing gas fed to the substrate, the method comprising the steps of:

feeding the processing gas into the processing vessel to pressurize the atmosphere surrounding the substrate; and

feeding a solvent vapor into the processing vessel while feeding the processing gas.

Claim 2 (withdrawn): The substrate processing method according to claim 1, further comprising the step of:

stopping feeding the solvent vapor while stopping generating the processing gas, and feeding a base gas of the processing gas into the processing vessel.

Claim 3 (withdrawn): The substrate processing method according to claim 2, further comprising the step of:

stopping feeding the base gas while exhausting a atmospheric gas in the processing vessel.

Claim 4 (withdrawn): The substrate processing method according to claim 1, further comprising the step of:

adjusting a temperature of the substrate before the processing gas is fed into the processing vessel.

Claim 5 (withdrawn): The substrate processing method according to claim 4, wherein in the step of adjusting a temperature of the substrate, a gas having a adjusted temperature is fed to the substrate.

Claim 6 (withdrawn): The substrate processing method according to claim 1, wherein the processing gas is ozone gas, and the solvent vapor is steam.

Claim 7 (withdrawn): The substrate processing method according to claim 6, wherein in the step of feeding ozone gas and steam to process the substrate, nitrogen gas is fed into the processing vessel while a feed amount of nitrogen gas is adjusted.

Claim 8 (withdrawn): The substrate processing method according to claim 7, wherein the feed amount of nitrogen gas is controlled to be zero.

Claim 9 (withdrawn): The substrate processing method according to claim 7, wherein the substrate is a semiconductor substrate having a metal wiring.

Claim 10 (currently amended): A substrate processing apparatus for processing at least a substrate-to-be-processed held in a processing vessel with a processing gas and a solvent vapor fed to the substrate, the apparatus comprising:

a processing gas feed system for feeding the processing gas into the processing vessel;
a solvent vapor feed system for feeding ~~a solvent~~ the solvent vapor into the processing vessel;

a nitrogen gas feed pipe for feeding nitrogen gas into the processing vessel, wherein a nitrogen gas flow rate control valve is inserted in said nitrogen gas feed pipe; and

a central controller for controlling the feed of the processing gas and the solvent vapor to be fed into the processing vessel[;], said central controller controlling the flow rate of nitrogen gas flowing through said nitrogen gas feed pipe so as to feed nitrogen gas, the processing gas and the solvent vapor to remove a resist on the substrate-to-be-processed and etch a metal on the substrate-to-be-processed, and controlling the flow rate of nitrogen gas flowing through said nitrogen gas feed pipe so as to feed the processing gas and the solvent vapor to remove a resist on the substrate-to-be-processed but not etch a metal on the substrate-to-be-processed

~~a nitrogen feed pipe for feeding nitrogen gas into the processing vessel; and~~

~~a nitrogen gas flow rate controller for controlling nitrogen gas flow rate through the nitrogen gas feed pipe.~~

Claim 11 (original): A substrate processing apparatus according to claim 10, wherein the processing gas is ozone gas, and the solvent vapor is steam.

Claim 12 (canceled)

Claim 13 (original): The substrate processing apparatus according to claim 10, comprising:
an interior exhaust system for discharging an atmosphere in the processing vessel; and
an exhaust rate adjusting system for adjusting an exhaust amount of the interior exhaust system.

Claim 14 (original): The substrate processing apparatus according to claim 10, wherein the processing gas feed system can feed ozone gas, or a base gas of ozone gas by actuating or stopping an ozone gas generator included in the processing gas feed system.

Claim 15 (currently amended): A substrate processing apparatus for processing at least a substrate-to-be-processed held in a processing vessel with ozone gas and steam fed to the substrate, the apparatus comprising:

an ozone generator for generating ozone gas;

an ozone gas feed pipe interconnecting the ozone gas generator and the processing vessel;

and

a steam feed pipe for feeding steam into the processing vessel[,]; and

a central controller for controlling the feed of ozone gas and steam to be fed into the processing vessel,

the ozone gas generator being connected to a nitrogen gas feed pipe with a nitrogen gas flow rate control valve inserted in and to an oxygen feed pipe for feeding oxygen, the central controller controlling the flow rate of nitrogen gas flowing through said nitrogen gas feed pipe so as to feed oxygen and nitrogen to the ozone generator to remove a resist on the substrate-to-be-processed and etch a metal on the substrate-to-be-processed, and controlling the flow rate of nitrogen gas flowing through said nitrogen gas feed pipe so as to feed oxygen to the ozone generator to remove a resist on the substrate-to-be-processed but not to etch a metal on the substrate-to-be-processed.

Claim 16 (original): The substrate processing apparatus according to claim 15, wherein the processing vessel comprises:

a vessel body for holding the substrate;

a vessel cover for opening or closing a loading/unloading opening provided in the upper end of the processing vessel; and

a tight-seal member for sealing a gap between the vessel cover and the vessel body when the vessel cover closes the loading/unloading opening of the vessel body.

Claim 17 (canceled)

Claim 18 (new): A substrate processing apparatus according to claim 10, wherein

Said central controller controls said processing gas feed system to feed the processing gas into the processing vessel to pre-pressurize the interior of the processing vessel before processing the substrate-to-be-processed and controls said processing gas feed system and said solvent vapor feed system to feed the processing gas and the solvent vapor respectively into the processing vessel to process the substrate-to-be-processed.

Claim 19 (new): A substrate processing apparatus according to claim 10, comprising:

a forced exhaust mechanism for forcibly discharging an atmosphere in the processing vessel;

a cooling unit disposed downstream of the forced exhaust mechanism for cooling and condensing at least the fluid discharged from the forced exhaust mechanism;

a mist trap disposed downstream of the cooling unit for separating the fluid from the cooling unit into gas and liquid; and

an apparatus disposed downstream of the mist trap for making the gas from the mist trap harmless.

Claim 20 (new): A substrate processing apparatus according to claim 15, wherein

said central controller controls the feed of ozone gas to pre-pressurize the interior of the processing vessel by feeding ozone gas into the processing vessel before processing the substrate-to-be-processed and controls the feed of ozone gas and steam to process the substrate-to-be-processed by feeding ozone gas and steam into the processing vessel.

Claim 21 (new): A substrate processing apparatus according to claim 15, comprising:
a forced exhaust mechanism for forcedly discharging an atmosphere in the processing vessel;

a cooling unit disposed downstream of the forced exhaust mechanism for cooling and condensing at least the fluid discharged from the forced exhaust mechanism;

a mist trap disposed downstream of the cooling unit for separating the fluid from the cooling unit into gas and liquid; and

an ozone killer disposed downstream of the mist trap for removing ozone from the gas of the mist trap.